

# Christmas Angel Ornament

by Larry Marley

Each year since 2006, I have created a new Christmas ornament and an accompanying video for my website. This Christmas angel ornament came to mind when I was practicing a turning technique by Hans Weissflog of Germany. He cuts intersecting grooves on both sides of thin stock to create a lattice-like pattern. When I held my practice piece up to the light, I decided that this pattern would make a nice set of angel wings.

## ABOUT THE TECHNIQUE

The basic idea is to cut a series of grooves halfway through the stock, and then flip and remount the stock on a different axis. A second set of grooves is then cut halfway through that will intersect the grooves from the other side to create the lattice effect. In a perfect world, you would cut exactly halfway through from each side; however, I tend to cut slightly past halfway to ensure that the pattern is clear. You will need a waste block for this, and a medium density fiberboard (MDF) disk mounted to a faceplate works well. A narrow parting tool can be used (or a custom-ground tool) to cut the grooves. The downside to the parting tool is that it tends to be tall for strength and this will cause binding in small-diameter grooves. The halo and wings will be held in place with double-sided tape.

This project uses a multiaxis turning technique. This means that some of the pieces will be turned, removed, and remounted on a different axis or center. Therefore, when I refer to the "center point" in this article, I am referencing the point of the turning that is positioned to the center of the faceplate.

## MAKE YOUR OWN TOOL?

My first angels were made with a Sorby narrow parting tool. It works, but it tends to bind in smaller-radius grooves. It seems to be a "rite of passage" that eventually you start making your own tools. I found a metal supply house near me that carried 3/8" tool steel rod; a 36" piece cost about \$18.00. An angle grinder was used to cut off an 11"

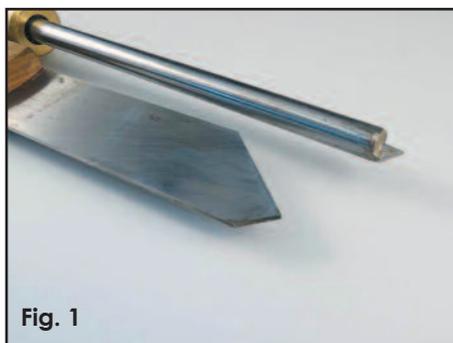


Fig. 1

**A narrow parting tool will work, but will bind in tight-radius grooves. A shopmade tool can be ground with a small, tight radius without binding.**



## SUPPLIES

**Wood:** one piece 2" x 2" x 1/4" hard maple or species of choice for halo; two pieces 2" x 3-1/2" x 1/4" hard maple or species of choice for wings; one piece 2" x 2" x 6" cherry or species of choice for body; waste block

**Tools:** lathe; spur drive and live center; scroll chuck with jaws to hold 2" diameter round; coping saw or scroll saw; bandsaw or table saw; drill press with 1/8" drill bit; roughing gouge, spindle gouge, bowl gouge, standard and narrow parting tools; custom-ground parting tool (optional—3/8" tool steel rod and wood for handle are needed); drum sander or thickness planer (or a friend with these tools); awl; bench chisel; X-acto blade

1/8" bamboo dowel

MDF (medium density fiberboard) disk

One piece 6" metallic pearl gold floss for the hanger

Assorted grits of abrasive paper

Medium cyanoacrylate glue (CA or superglue)

Shellac or finish of choice

Cardboard for template

Double-sided tape

Masking tape

Ruler and pencil

*Please refer to all manufacturers' labels for proper product usage.*



Fig. 2

Hollow the base to reduce weight.

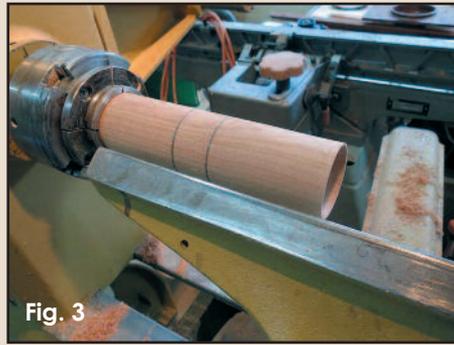


Fig. 3

Measure and mark the location of the head.

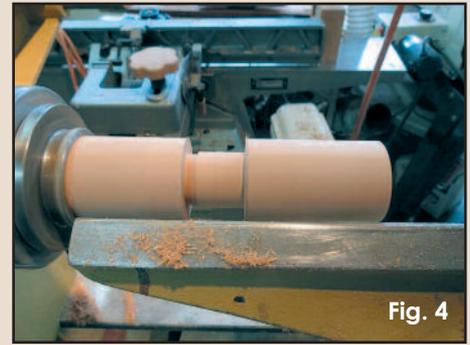


Fig. 4

Use a parting tool to size and mark the location of the head.

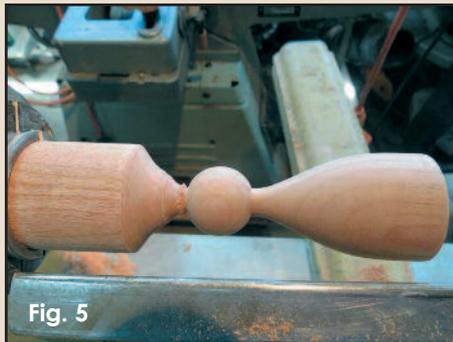


Fig. 5

I like my angels a little on the plump side. Start and end with the base and head parallel to the bed.

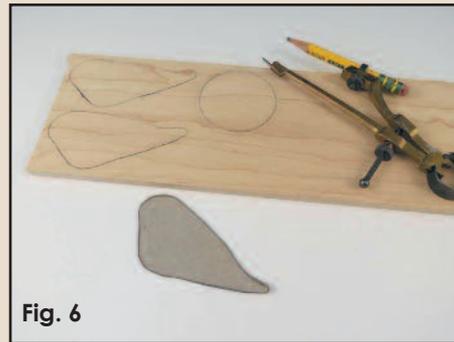


Fig. 6

Trace the wing pattern onto the maple stock.

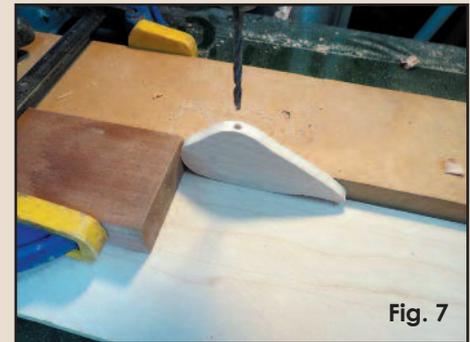


Fig. 7

Drill a 1/8" hole into the shoulder of the wing.

piece and a handle was made out of maple (see Fig. 1). I ground the tip on a grinder. Do this by holding the shaft on the tool rest, and plunge straight into the wheel to remove the material on each side of the tip and to remove the top half of the tip so that the cutting edge is on center with the tool. The bevel is ground to 40°. Have a bucket of water nearby to douse the tool frequently during grinding to keep it cool. My goal was to make a tool that would fit in tight-radius grooves, be heavy enough not to flex, yet long enough to give me leverage over any forces made by the turning. Any lateral movement of the tool in the groove could cause a failure.

Whatever tool you use, make sure that it is sharp! You will spend much less time cleaning up the "fuzzies" afterward.

## THE BODY

The body was made from cherry, but use whatever species you desire. Start with a 2" x 6" block and turn it down between centers until you have a cylinder. Cut a tenon and remount it in a scroll chuck; lightly re-turn to remove any wobble.

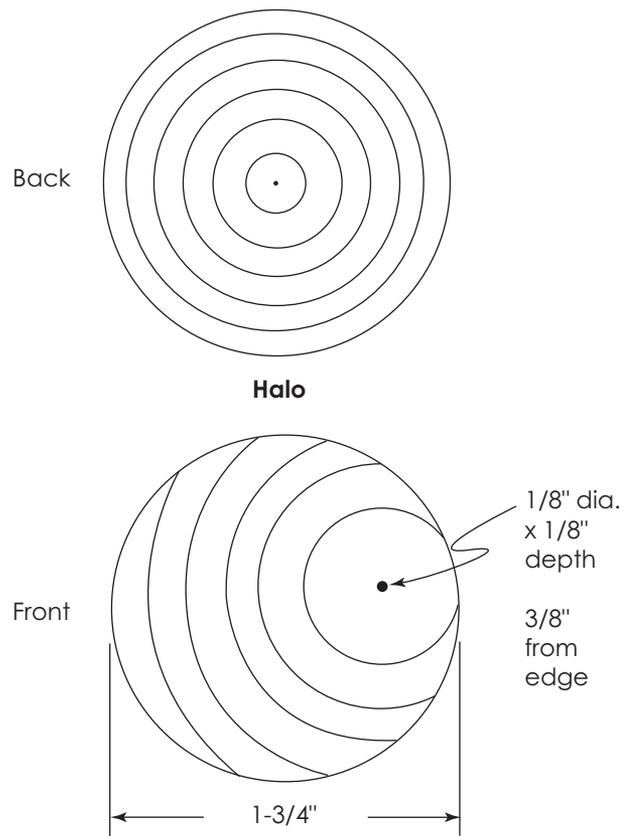
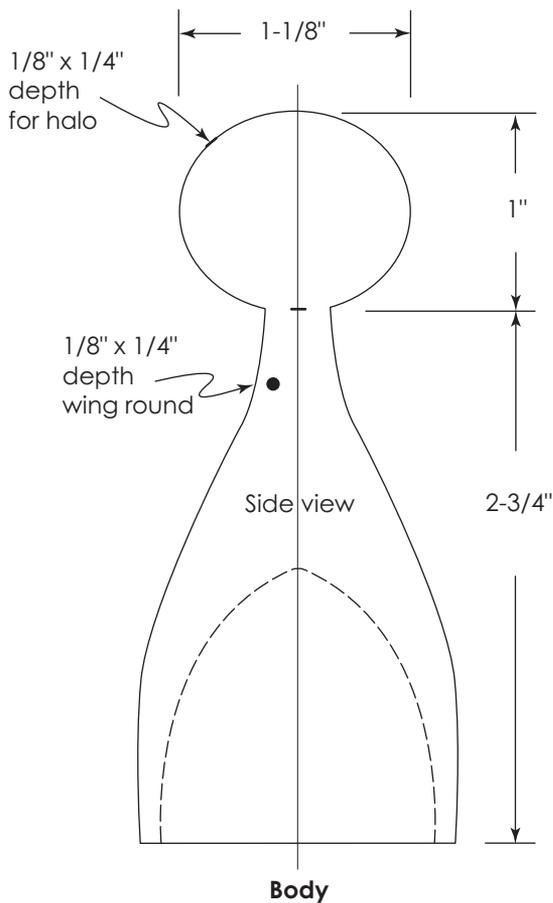
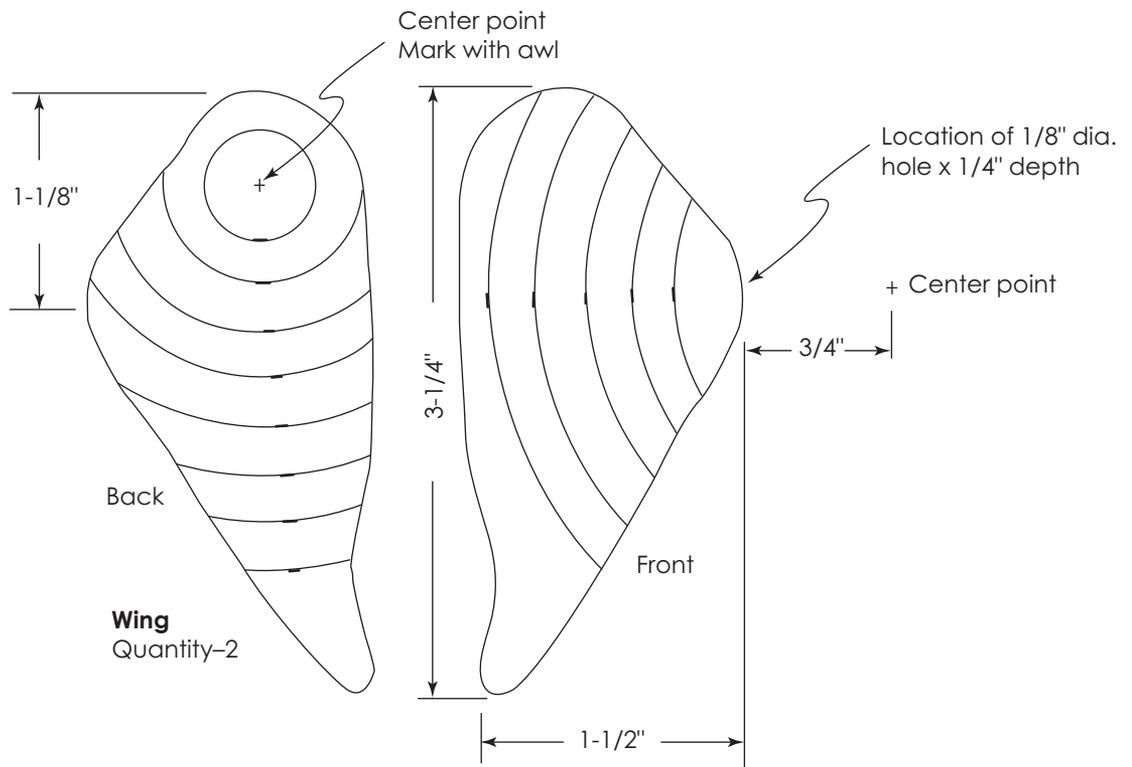
Use a parting tool to square off the end, and then hollow the underside with a bowl gouge to a depth of 1-1/4", narrowing as you go (see Fig. 2 and Diagram A—Body).

Mark the location of the head by measuring up from the bottom, 2-3/4" and 3-3/4" respectively (see Fig. 3).

I use a full-size parting tool to reduce the diameter of the blank where the head will be located because this gives me a visual reference for shaping the body (see Fig. 4). Start shaping from the base and work your way to the head with a spindle gouge. I like curves, so I avoid shaping the body like a cone. Start with the curve parallel to the lathe bed and accelerate the angle to the neck, reaching almost parallel again where the neck meets the head (see Fig. 5).

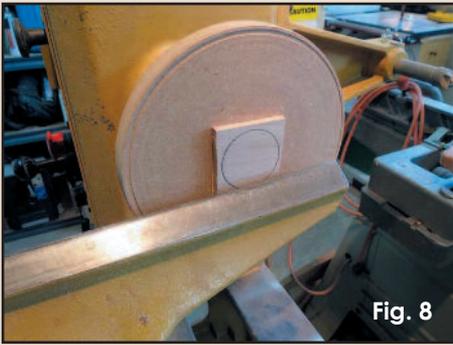
## PREPARE THE HALO AND WING STOCK

I recommend making extra stock, because you will probably experience a high failure rate until the process of turning the grooves is mastered and you develop a feel for it. I made the wings and halo from 1/4" maple, but use whatever contrasting wood you wish. The 3/4" thick maple was resawed on the bandsaw, so it was slightly over 1/4", and then it was run through a drum sander down to the final thickness—a thickness planer would also work well. Since these pieces are small (less than 2" wide), they can also be cut from a 2" wide board on the table saw. (Note: To avoid injury, please consult your owner's manual for cutting thin stock on a table saw.)

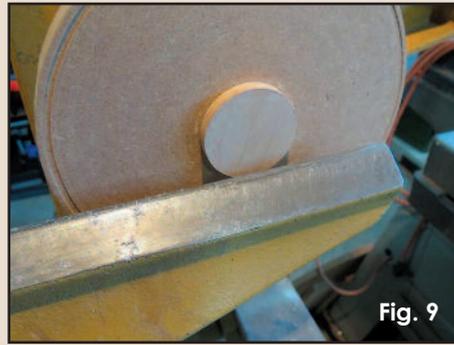


**Diagram A**

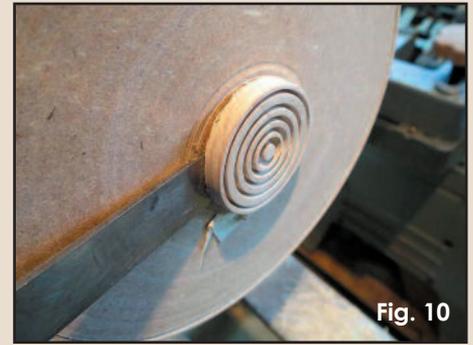
Use the parts of this diagram to create the wing templates, and as references for groove and hole placement.



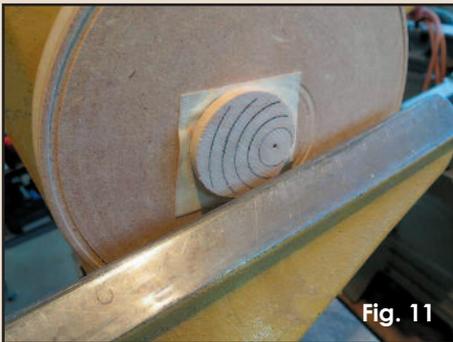
The maple stock is held in place with double-sided tape.



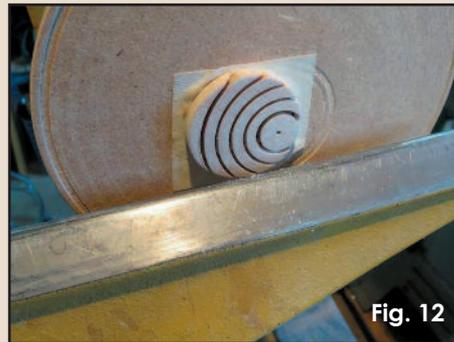
Stand clear; the corners may fly off when using the parting tool to cut the halo to size.



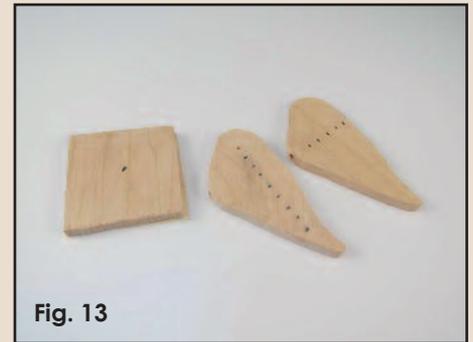
Double-sided tape will let go with a little pressure; just start to pry it loose and give it a few seconds.



Marking the groove locations with a pencil will make it easy to see when spinning.



The grooves are cut and ready for sanding.



Use the template from Diagram A to mark the groove spacing.

Enlarge the wing diagram to the measurements given and trace the wings onto the stock (see **Diagram A—Wing**). If you plan to make several of these, the cardboard from a tissue box makes a good template (see **Fig. 6**). Use a coping saw or scroll saw to cut out the wings, and finish-sand the edges. A spindle sander or sanding drum on a drill press works great for this. The wings can be taped together with double-sided tape so that they will be identical after sanding. Use a drill press to bore a 1/8" hole into the edge of each wing (at the shoulder) to a depth of 1/4" (see **Fig. 7**). A 1/4" x 2" x 2" piece of maple will also be needed for the halo.

The wings are held in place with a 1/8" bamboo dowel; most 1/8" dowels found at a craft store or big box store are too fragile. I found a package of a hundred 1/8" bamboo skewers for a dollar at an Asian food store, which is enough for a thousand angels and fifty kabobs.

## TURN THE HALO

Use **good** double-sided tape (available from most turning supply houses) to mount the 2" x 2" maple to the center of the MDF faceplate. Mark the 1-3/4" diameter for the halo on the stock with a pencil, and use a narrow parting tool to cut the halo to size (see **Figs. 8 and 9**). Mark the location of the five grooves that need to be cut

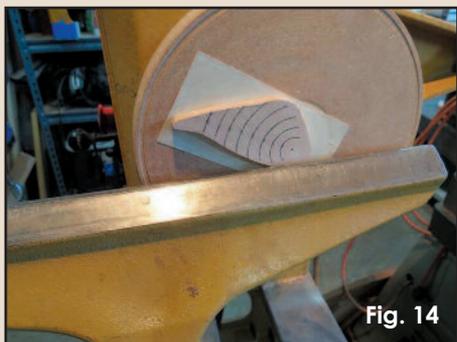
(see **Diagram A—Halo**).

The grooves should be just over halfway through the stock to a depth of 1/8". You can paint a mark on the tool to indicate this depth, or use tape to mark it. It's okay to cut slightly deeper than 1/8", but you need to be sure to remove a full 1/8". Set the tool rest so that the tool's cutting edge is at the centerline. I make this cut at about 1600 rpm and use a very sharp tool; a dull tool will cause tearout and is more likely to damage the piece. Plunge straight in, being careful not to change the tool angle from side to side. Repeat with the remaining grooves.

Use a bench chisel to carefully pry the halo from the faceplate. Double-sided tape will release with constant pressure, so start to pry the piece and hold. The tape will start to let go after a few seconds (see **Fig. 10**). Just don't get too aggressive and break it!

Now flip and remount the halo off-center; the center point will be 3/8" from the edge. Mark the location of the grooves, starting with the 3/8" diameter groove that will just intersect the edge, and then cut the grooves (see **Figs. 11 and 12**, and **Diagram A—Halo**).

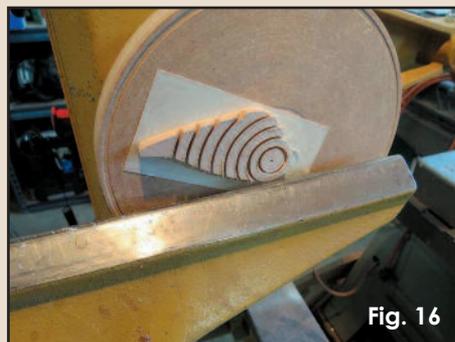
A 1/8" hole bored 1/8" deep into the halo at its current center point is needed. It can be drilled using the tailstock and a Jacobs chuck while it is still mounted off-center on the lathe, or it can be done later on the drill press.



**Fig. 14**  
The wing back is marked and ready to cut.



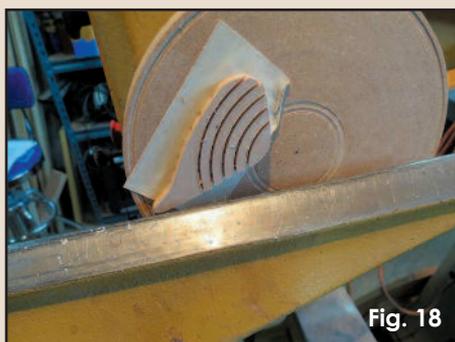
**Fig. 15**  
Good lighting will help you see the groove locations when turning the wings.



**Fig. 16**  
The back of the wing is finished.



**Fig. 17**  
The shoulder of the wing is 3/4" from the center of the faceplate. Mark the location with a pencil to align the second wing so that they match.



**Fig. 18**  
The wing is completed and ready to sand.



**Fig. 19**  
The parts are sanded, finished, and the dowels are glued in place and cut to 1/4" long.

The halo is fragile at this point, so be very careful removing it from the faceplate. Some people use alcohol to soften the tape; I just lightly pry perpendicular to the grooves.

## TURN THE WINGS

Now is the time to identify the right and left wings—avoid making two left or two right wings. Lay them down with the shoulder points facing each other; mark the center point and groove locations for each.

Flip them over and mark the front groove locations (see **Fig. 13** and **Diagram A—Wing**). Using the tailstock as a guide, mount the first wing to the faceplate with double-sided tape.

Using the groove markings as a reference, turn the faceplate by hand while holding a pencil to draw the groove locations (see **Fig. 14**). Cut the grooves as you did for the halo. You will be cutting a great deal of air because the wing is off-axis, but good lighting will help you see the ghost of the lines (see **Fig. 15**). Use a firm hand with a light touch and ease your way into each cut. Inspect the cuts before removing the wing. If any appear to be too shallow, now is the time to cut them deeper (see **Fig. 16**).

Use a chisel to carefully remove the wing and remount it with the pointed shoulder of the wing 3/4" from

the faceplate center (see **Fig. 17**). Notice the orientation of the wing. As with the back, mark the groove locations and cut the grooves. When complete, inspect the lattice. Use a flashlight, if necessary, to see that the lattice is clear and that you can see through it. Be very careful when removing it from the lathe, as the wing is now fragile (see **Fig. 18**).

## FINISHING

I prefer to apply a finish before final assembly. Fold a piece of abrasive paper and run it through the grooves to clean them out. Sometimes an X-acto blade is needed to clean up all the little details in the lattice. It is difficult to apply the finish to the lattice with a brush or a rag, so for the first coat, I insert a bamboo dowel into the mounting hole and dip the pieces into the finish. I use a little high-pressure air to blow off the excess, and then blot. Also, finish-sand, and apply your favorite finish to the body; I use shellac for most of my ornaments, but use whatever finish you wish.

## FINAL ASSEMBLY

Glue the dowels into the wings and halo using cyanoacrylate glue (CA or superglue); trim off the excess to 1/4" (see **Fig. 19**). In order to mount the wings and halo, three holes



Fig. 20

The holes are drilled for the wings and halo.



Fig. 21

Metallic pearl gold floss is used for the hanger by threading it through the halo.



Fig. 22

This is the side view—note the angle of the halo and the wings.

will be drilled into the body. The wings are mounted with the dowels extending straight out from the body perpendicular to the turning centerline (see Fig. 20).

Feature the grain. Look at the wood grain pattern on the angel, especially on the head, and decide where you want the face. Mark the position of the holes by wrapping masking tape around the neck area where the wing-mounting holes will be located. Measure 3/8" down from where the body meets the head, and mark it horizontally. The wings are about 165° apart, pointing slightly back. Once you find the center of the face, identify where the first wing is 90° from the face, and then move it a little farther back. Mark this location on the horizontal line. Use an awl to mark the hole and drill the 1/8" diameter hole, 1/4" deep. Dry-fit the wing and hold the second wing in place to choose its location. Mark, drill, and dry-fit the second wing in place.

Now for the halo. While looking at the back of the angel, mark the center of the head with a pencil; this should be centered between the two wings. The halo tilts forward (see **Diagram A—Body** for location of the hole). You can hold it in place to judge where you want it to go; then mark and drill the hole 1/4" deep. Dry-fit the halo and check that everything is as it should be. Then remove the wings and halo, apply CA to the holes, and reassemble.

The last step is to install the hanger. I use metallic pearl gold floss for this (available at craft stores). A 6" length is threaded through the halo from the back and tied in a knot. The floss frays easily, so in order to be able to thread it through the small lattice holes, apply a few drops of CA to one end, and once dry, trim it to a point with scissors. Now it can be threaded like a needle. Trim off the glued end and tie (see Figs. 21 and 22).

## FINAL NOTES

These ornaments proved to be very popular. I was inun-

dated with orders for them last year and they have continued to be popular throughout the year. So consider yourself warned—making one may lead to making many, many more...

## Larry Marley



Larry Marley purchased his first lathe in 1994. Initially, the lathe served as a tool to create parts for furniture, but the creativity of the lathe kept him coming back for more. During the last eighteen years, he has attended countless seminars and demonstrations presented by famous turners, read books, watched videos, and spent thousands of hours in the shop.

Segmented turning, also known as polychromatic turning, has become Larry's principal focus. He is known for his annual Christmas ornaments that appear on his and other websites in late November each year. People in the turning community have been very supportive and willing to share what they have learned with others, and it is in this spirit that he happily shares his woodturning journey with you and hopes that his passion for woodturning will spark your imagination to turn a simple piece of wood into an adventure.

Larry Marley is the webmaster and Director of Public Affairs for the Orange County Woodworkers Association, and is an invited artist at the La Quinta Art Under the Umbrellas show in La Quinta, California. He welcomes your questions and comments, and can be reached at [Larry@MarleyTurned.com](mailto:Larry@MarleyTurned.com). To see more of Larry's work, please visit his website at [www.MarleyTurned.com](http://www.MarleyTurned.com).



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